

### REMARKS

Claims 5-8, 10-14, 16, 18, 19, 27, and 29-36 are pending. Claims 7, 11, and 27 have been amended and claims 1-4, 15, 17, 20-26, and 28 have been canceled. The amendments have been made to overcome the claim objection and the rejection under 35 USC § 112, second paragraph, as well as to correct other minor errors.

In the Office Action, claims 5, 31, 32, 33, and 36 were rejected under 35 USC § 103(a) based on the O'Brien patent taken in combination with the Rosback patent. Applicants request the Examiner to withdraw this rejection for the following reasons.

Claim 5 recites a gain control unit, connected to the plurality of pulse width modulators, for "independently controlling gains of the audio signals received at the plurality of pulse width modulators, wherein the gain control unit independently controls gains of at least a portion of the audio signals to be at different levels according to individual channels." The O'Brien patent does not teach or suggest these features.

The Rosback patent discloses a circuit for controlling the gain of an input signal. This circuit includes a band splitter 12 and gain controllers 22, 24, and 26. In operation, the band splitter divides an input signal into three frequency bands, and the gain controllers adjust the gains of the signals in each band respectively.

However, the gain controllers of Rosback do not "independently control" the gains of at least a portion of a plurality of channel signals. In fact, Rosback teaches away from these features. At column 3, lines 7-21, the Rosback patent discloses that the three gain controllers 22,

24, 26 do not operation completely independent of one another. Rosback then goes on to specify in detail how gain control adjustments are made dependent on the gains and frequency characteristics in the other bands:

Some dynamic change in the frequency characteristics of the audio signal is produced by the multi-band AGC circuit due to nonuniform gain across the three bands. The high band and low band gain control lines are strapped to the midband, however, by cross-coupling lines not shown in FIG. 1. The gain strapping insures that **the gains in the high and low bands never deviate from the midband gain by more than a selected amount.** The three gain control circuits also share certain other control lines so that **the control characteristics of the automatic gain control circuit is relatively uniform across the three frequency bands.** (Emphasis added)

The Rosback patent, therefore, indicates that the gains in all three bands are controlled relative to one another, both to ensure that the gains in some of the bands do not deviate from the gain in another band by a certain amount and to ensure that the gains of all three bands are uniform. In view of these disclosures, it is evident that the gain controllers of Rosback operate dependently on one another. Moreover, the gain controllers of Rosback are not connected to a plurality of pulse width modulators.

In contrast, claim 5 recites a gain control unit which is connected to the plurality of pulse width modulators and which independently controls gains of audio signals received at the plurality of pulse width modulators, where the gain control unit independently controls gains of at least a portion of the audio signals.

In addition to these features, claim 5 recites that the gains are independent controlled “to be at different levels according to individual channels.” Rosback also does not teach or suggest these features, i.e., the Rosback gain controllers 22, 24, 26 may adjust the high, mid, and low band signals by different gains, but these gains are not independent controlled to be at different levels as required by claim 5.

As for the disclosure at column 1, lines 49-50, here Rosback merely discloses that the gains of its high, mid, and low frequency band signals are simultaneously controlled. Neither this nor any other portion of Rosback teaches or suggests the independent control features recited in claim 5.

Based on these differences, it is respectfully submitted that claim 5 and its dependent claims are allowable over an O’Brien-Rosback combination.

Dependent claim 31 recites that the gain control unit includes “a plurality of gain controllers, each independently controlling a gain of audio signals received at a respective one of the pulse width modulators.” The Rosback patent does not teach or suggest these features.

Dependent claim 32 recites that the gain control unit “independently controls a first number of the audio signals to be at a first level and a second number of the audio signals to be at a second level.” The Rosback patent does not teach or suggest these features.

Dependent claim 33 recites that “the first number is greater than one and the second number is greater than one.” The Rosback patent does not teach or suggest these features.

Claims 13 and 14 were rejected under 35 USC § 103(a) for being obvious in view of an O'Brien-Kondo-Rosback combination. This rejection is traversed on grounds that the Rosback patent does not teach or suggest "a plurality of signal controllers coupled to the plurality of modulators to independently control at least one of input signals and output signals of the plurality of pulse width modulators, wherein the plurality of signal controllers comprise a plurality of gain controllers that each receive one of the audio signals received for a corresponding one of the plurality of pulse width modulators, wherein the gain controllers independently control gains of at least a portion of the received audio signals to be at different levels according to individual channels."

Based on these differences, Applicants submit that claims 13 and 14 are allowable.

Claims 16 and 18 were rejected under 35 USC § 103(a) for being obvious in view of a Kondo-O'Brien-Rosback-Beard combination. This rejection is traversed on grounds that the Beard patent does not teach or suggest the features of base claim 14 missing from the other references.

Claims 27 and 29 were rejected under 35 USC § 103(a) based on a Kondo-O'Brien-Beard combination. Claim 27 has been amended to recite the features of allowable claim 28, except that "six" has been replaced with N, where N is an integer. Applicants submit that claim 27 and its dependent claims are allowable in view of these amendments.

Claim 19 was rejected under 35 USC § 103(a) for being obvious in view of an O'Brien-Rosback-Beard combination. This rejection is traversed on grounds that the Rosback patent does not teach or suggest gain controllers that "independently control gains of at least a portion of the received audio signals to be different according to individual channels of the pulse width modulators." In view of these features, Applicants submit that claim 19 and its dependent claims are allowable.

Claims 11, 34, and 35 were rejected under 35 USC § 103(a) for being obvious in view of an O'Brien-Rosback-Yoshida combination. This rejection is traversed on grounds that the Rosback patent does not teach or suggest the independent gain control features of base claim 5.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and timely allowance of the application are respectfully requested.

Serial No. 10/628,380


Docket No. LT-0037

Amdt. dated January 28, 2008

Reply to Office Action of October 31, 2007

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

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